

BRUN-BUISSON et al
Appl. No. 10/559,707
April 7, 2008

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

1-10 (cancelled).

11 (currently amended). Process for preparing an ethanolamine having an improved colour quality, ~~characterised in that it comprises a said process comprising~~ contacting of an ethanolamine with an activated carbon free of one or more metals chosen selected from rhenium, ruthenium, rhodium, palladium, osmium, iridium, platinum and silver, under an atmosphere free of hydrogen.

12 (currently amended). Process according to claim 11, ~~characterised in that~~ wherein the ethanolamine is an ethanolamine or a mixture of two or more ethanolamines chosen selected from monoethanolamine (MEA), diethanolamine (DEA) and preferably triethanolamine (TEA).

13 (currently amended). Process according to claim 11, ~~characterised in that~~ wherein the ethanolamine is prepared in a synthesis stage by reacting ethylene oxide with ammonia, preferably in aqueous medium.

14 (currently amended). Process according to claim 11, ~~characterised in that~~ wherein the ethanolamine has initially, prior to its contacting with the activated carbon, a

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colour index (according to ASTM standard D 1209) of more than 40 Pt/Co, preferably more than 50 Pt/Co, and optionally a content by weight of metal, preferably of iron, equal to or more than 6 parts per million (ppm), more particularly equal to or more than 8 ppm, in particular equal to or more than 10 ppm.

15 (currently amended). Process according to claim 11, characterised in that wherein the activated carbon has a specific surface area (N₂ BET) of from 500 to 5000 m²/g, preferably from 500 to 2500 m²/g, more particularly from 700 to 2000 m²/g.

16 (currently amended). Process according to claim 11, characterised in that wherein the contacting of the ethanolamine with the activated carbon is carried out at a temperature of from 10 to 200°C, preferably from 15 to 100°C, more particularly from 20 to 80°C.

17 (currently amended). Process according to claim 11, characterised in that wherein the contacting of the ethanolamine with the activated carbon is carried out for a period sufficient to reduce the colour of the ethanolamine, preferably for a period such that the colour index (according to ASTM standard D 1209) of the ethanolamine becomes equal to or less than 50 Pt/Co, preferably equal to or less than 40 Pt/Co, more particularly equal to or less than 30 Pt/Co.

18 (currently amended). Process according to claim 11, characterised in that wherein the mean residence time of the ethanolamine contacted with the activated

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carbon is chosen in a range of from 10 minutes to 18 hours, ~~preferably from 30 minutes to 12 hours, more particularly from 1 to 8 hours.~~

19 (currently amended). Process according to claim 11, characterised in that wherein it is carried out during or after the stage of preparation of the ethanolamine, ~~preferably during or after the stage of purification of the ethylene.~~

20 (currently amended). Process for manufacturing a triethanolamine (TEA) having an improved colour quality, which process comprises the following stages:

(i) a stage for synthesising TEA by the contacting of ethylene oxide with ammonia in aqueous medium, so as to form a crude TEA containing monoethanolamine (MEA), diethanolamine (DEA) and TEA, as a mixture with water and ammonia in excess and/or not having reacted,

(ii) a stage for separating the crude TEA and the mixture of water and ammonia, so as to isolate and recover the crude TEA, and

(iii) a stage for purifying the TEA by distillation of the crude TEA, so as to separate substantially the MEA and the DEA from the TEA, and to isolate and recover a purified TEA containing at least 85 wt % of TEA,

~~which process is characterised in that wherein, after the separation stage (ii) or during or after the purification stage (iii), the crude or purified TEA is contacted with an activated carbon free of one or more metals chosen selected from rhenium, ruthenium, rhodium, palladium, osmium, iridium, platinum and silver, under an atmosphere free of hydrogen.~~

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21 (new). Process according to claim 13, wherein the ethanolamine is prepared in a synthesis stage by reacting ethylene oxide with ammonia in aqueous medium.

22 (new). Process according to claim 14, wherein the ethanolamine has a colour index (according to ASTM standard D 1209) of more than 50 Pt/Co, and optionally a content by weight of metal, preferably of iron, equal to or more than 6 parts per million (ppm), more particularly equal to or more than 8 ppm, in particular equal to or more than 10 ppm.

23 (new). Process according to claim 15, wherein the activated carbon has a specific surface area (N_2 BET) of from 500 to 2500 m^2/g , more particularly from 700 to 2000 m^2/g .

24 (new). Process according to claim 15, wherein the activated carbon has a specific surface area (N_2 BET) of from 700 to 2000 m^2/g .

25 (new). Process according to claim 11, wherein the contacting of the ethanolamine with the activated carbon is carried out at a temperature of from 15 to 100°C, more particularly from 20 to 80°C.

26 (new). Process according to claim 11, wherein the contacting of the

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ethanolamine with the activated carbon is carried out at a temperature of from 20 to 80°C.

27 (new). Process according to claim 17, wherein the contacting of the ethanolamine with the activated carbon is carried out for a period such that the color index (according to ASTM standard D 1209) of the ethanolamine becomes equal to or less than 50 Pt/Co.

28 (new). Process according to claim 17, wherein the contacting of the ethanolamine with the activated carbon is carried out for a period such that the color index (according to ASTM standard D 1209) of the ethanolamine becomes equal to or less than 40 Pt/Co.

29 (new). Process according to claim 17, wherein the contacting of the ethanolamine with the activated carbon is carried out for a period such that the color index (according to ASTM standard D 1209) of the ethanolamine becomes equal to or less than 30 Pt/Co.

30 (new). Process according to claim 18, wherein the mean residence time of the ethanolamine contacted with the activated carbon is chosen in a range of from 30 minutes to 12 hours.

31 (new). Process according to claim 18, wherein the mean residence time of

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the ethanolamine contacted with the activated carbon is chosen in a range of from 1 to 8 hours.

32 (new). Process according to claim 19, wherein it is carried out during or after the stage of purification of the ethylene.